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ABSTRACT

This pamphlet discusses the "unnatural" history of tobacco, the broadening medical indictment, world smoking trends, who profits, and public policy and public health. Equalling a fourth of the global military budget, consumer expenditure on cigarettes ensures that powerful, strongly motivated interests will struggle to keep global cigarette sales on the rise. This is true despite the fact that the World Health Organization has said that the control of cigarette smoking could do more to improve health and prolong life than any other single action in the whole field of preventive medicine. (Author)

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Cutting Tobacco's Toll

Erik Eckholm

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Worldwatch Institute

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In developed countries, "the control of cigarette smoking could do more to improve health and prolong life than any other single action in the whole field of preventive medicine," declares the World Health Organization. Yet governments of many political hues subsidize tobacco production, and consumers the world over spend an astounding $85 to $100 billion each year to buy four trillion cigarettes.[1]

Cigarette sales in North America and Europe are beginning to level off as word spreads of smoking's health toll. But the world cigarette industry is hardly in despair, for a vast potential market in the Third World is crystallizing.[2] Corporate advertisers and national governments, in combination with changing social fashions, are today fostering tomorrow's premature deaths in Africa, Asia, and Latin America. Although many governments, particularly in developed countries, have recently adopted a variety of anti-smoking policies, still more have done little or nothing to discourage cigarette use.

How is it that such a harmful product has become so firmly entrenched in daily life the world over? That tobacco occupies good farmland in India while peasants starve nearby? That the cigarette merchants are allowed to use Madison Avenue's wiliest marketing techniques to cajole youngsters into a lifetime of smoking? Like a dime novel the tale of the three-cent cigarette is a tale of intrigue, corporate power, and governmental hypocrisy; of human pleasure, addiction, and premature death.

"This vice will always be condemned and always clung to," wrote Bernardino Ramazzini, considered by many the father of occupational

I would like to thank Frank Record for his assistance with the research for this paper.

medicine, in 1713 of tobacco use. Trying to figure out why Italian tobacco workers prized their jobs despite the severe head and stomach ailments tobacco dust inflicted upon them, Ramazzini made another observation of present-day relevance when he noted that "the sweet smell of gain makes the smell of tobacco less perceptible and less offensive to those workers."[3]

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Although the medical case against smoking has been conclusively established only within the last quarter-century, tobacco has had powerful opponents, as well as powerful champions, almost from the moment on November 2, 1492, when Christopher Columbus first saw native Cubans smoking rolled tobacco leaves. Yet from the beginning, social fashions, the lure of profits, and the association of tobacco with relaxation have all helped propagate its use. Today, despite the medical community's consensus and exhortations, the smoking habit continues to spread in most of the world. Indeed, many countries are just now entering the era of tobacco-induced disease and death.

Native Americans, who used the plant for ritual and medical purposes, were the first tobacco smokers, but their European conquerors turned smoking and other forms of tobacco use into global habits. Sixteenth-century Spanish and Portuguese sailors first took tobacco to the far corners of the earth. Jean Nicot, the French ambassador to Lisbon, was intrigued by the plant's apparent medicinal properties and sent powdered tobacco home to his queen, Catherine de Médicis, to use in combatting migraine headaches. In his honor both the plant's genus *(Nicotiana)* and a principal chemical constituent were named.[4]

Sir Walter Raleigh, the colorful favorite of Queen Elizabeth's court, popularized smoking in England during the late sixteenth century; the practice caught on fast and early orders for tobacco were filled in Spain's New World colonies. Upon Elizabeth's death in 1603, however, British rule fell to James I, who found Raleigh's smoking habit as objectionable as he found the courtier's politics. (James eventually beheaded Raleigh for political reasons, but one nineteenth-century writer claimed that smokers could consider Raleigh "the first martyr in their cause."[5])

"Many countries are just now entering the era of tobacco-induced disease and death."

James declared that tobacco use was unhealthy, unholy, and altogether unbefitting a civilized society. He concluded his famous *Counter-Blaste to Tobacco*, published in 1604, by characterizing smoking as "A custom lothsome to the eye, hatefull to the Nose, harmefull to the braine, dangerous to the Lungs, and in the blacke stinking fume thereof, neerest resembling the horrible Stigian smoke of the pit that is bottomelesse."

Even as James fumed, other people were making extravagant claims about the salubrious powers of tobacco smoke. Some doctors prescribed smoking as an antidote to colds and fevers, and some even believed that inhaled smoke might ward off the plague. During the plague year of 1603, all the schoolboys at Eton "were obliged to smoak in the school every morning," reported a certain Tom Rogers, who also said that he never received a harsher whipping than the one he suffered one morning as punishment for not smoking.[6]

Despite the anti-smoking campaign conducted by several of James's successors, and the opposition of early seventeenth-century leaders in India, Japan, the Ottoman Empire, Russia, China, and elsewhere, tobacco use quickly spread around the world through commerce and the tentacles of the colonial system. As one pipe-lover waxed in 1895 over tobacco's spread, "prince and peasant alike yielded to its mild but irresistable sway." In eighteenth-century Italy, Ramazzini reported, tobacco was smoked or inhaled by "women as well as men and even children," and its purchase was "reckoned among the daily expenses of a family."[7]

Spreading fast and far, tobacco became one of the most widely diffused artifacts in modern history. When a Stone Age group, the Tasaday, was discovered several years ago in a Philippine rain forest, the group's total unfamiliarity with tobacco was regarded by anthropologists as remarkable evidence of long isolation. (Unknowingly showing good sense, the Tasaday made a point of returning the tobacco offered them, while keeping gifts of knives, cloth, bows and arrows, rice, and salt.)[8]

The widening demand and, hence, growing commercial market for tobacco in sixteenth- and seventeenth-century Europe spurred the

emergence of a lucrative industry. British colonists settled in Virginia expecting to cash in on the New World's precious metals, lumber, furs, and fish; instead, they learned that only tobacco exports could keep their colony afloat. Virginia was nearly abandoned in 1614, but tobacco soon brought prosperity to the colony. It eventually became the economic backbone of the South Atlantic colonies despite the strong opposition of the English king and even of the founding colonial companies to reliance on this crop.[9] The "sweet smell of gain" proved a potent force indeed; and, although tobacco no longer dominates the economies of these states as totally as it once did, the tobacco industry still wields considerable force in these and other tobacco-producing areas of the world.

The popularity of one or another form of tobacco use has varied with changing notions of vogue. In eighteenth-century England, for example, the practice of sniffing snuff all but replaced the smoking habit for nearly one hundred years. Tobacco was first rolled in small papers in Brazil in the eighteenth century; cigarettes then became popular in Spain during the Napoleonic Wars and, by the end of the nineteenth century, were familiar to people throughout most of the world. In the current century, cigarettes have nearly everywhere edged out pipes, cigars, snuff, and chewing tobacco as the medium of choice. Unfortunately, cigarette smoking also happens to be the most dangerous form of tobacco use.

Skillful marketing by the cigarette companies undoubtedly helped sell the public on cigarettes during the early twentieth century. But the power of advertising alone cannot account for the symbolic value with which cigarettes have been invested. Simple tubes of tobacco have come to represent modernity, savoir-faire, and, in the minds of children who for decades have plunked down nickels for candy cigarettes and bubblegum cigars, adulthood. Hollywood may be one culprit. Humphrey Bogart would not be Humphrey Bogart without a cigarette drooping from his mouth, and Lauren Bacall's sultry "Got a match?" helped identify cigarettes as the essential social crutch. Even Bogart's death from esophageal cancer could not dampen the mystique of cigarettes, their aura of sweet success and glamour that movies continue to foster. In contemporary Soviet films, comments

the satirical Moscow magazine *Krokodil,* "when an actor handsome like Apollo . . . takes a cigarette into his fingers, it isn't accidental. It means the time has come for a director to demonstrate that his character can also think."[10]

The Broadening Medical Indictment

Only quite recently has the compilation of an awesome medical case against cigarettes begun to tarnish the social sheen of smoking. Many thoughtful doctors had long suspected that cigarettes promote diseases, but proof of the risks eluded researchers until the mid-twentieth century. As recently as the early 1900s, cigarette advertisers could claim with impunity that their products actually promoted better health.

A startling jump in the number of lung-cancer deaths in North America and Europe provided the first widely accepted proof of smoking's hazards. Lung cancer was rare everywhere in the nineteenth century, but in the twentieth it rapidly emerged as the leading cause of cancer deaths in many countries. By 1950, studies in England and the United States had shown an exceptionally close correlation between personal smoking habits and lung-cancer incidence. By 1953, the prestigious *New England Journal of Medicine* could characterize the evidence linking cigarettes and lung cancer as "so strong as to be considered proof within the everyday meaning of the word." Then, in 1954, British and U.S. researchers independently established that smokers have a markedly higher *overall* death rate in any given year than nonsmokers do.[11]

In the early sixties, two landmark public documents that crystallized the evidence on smoking's health effects caused something of a turning point in the social history of tobacco. Both a report released in 1962 by the Royal College of Physicians of London and one published in 1964 by the Surgeon General of the United States presented the massive medical case against tobacco.[12] These and other similar documents prompted some governments to educate people about the hazards of smoking and to place partial restrictions on cigarette

advertising. As a result, the word on smoking's risks has now been fairly effectively disseminated, at least within most developed countries. Most people, even most heavy smokers, realize that they are probably shortening their lives as they smoke—though few may be aware of the scope and severity of the threat they are inflicting on themselves.

Habitual smokers, calculates the Royal College of Physicians, shorten their lives by an average of five-and-one-half minutes for each cigarette they smoke—a loss of life span almost equal to the time spent smoking. An American man of 25 who smokes two packs a day for the rest of his life can expect to die eight years earlier than a nonsmoker.[13] Dr. Benjamin F. Byrd, Jr., former President of the American Cancer Society, describes the physiological stresses and the chemical feast to which smokers treat themselves with each cigarette:

> Within seconds after a smoker inhales cigarette smoke, his blood pressure starts rising by 10 to 20 points, his heart rate increases by 25 beats per minute, his skin temperature drops 5 or 6 degrees—because nicotine constricts the small blood vessels in his skin—and even his eyesight is adversely affected. And when he exhales, up to 90 percent of that true tobacco taste stays in his tissues as submicroscopic particles of about 1,200 chemicals—among them acids, glycerol, aldehydes, ketones, aliphatic hydrocarbons, aromatic hydrocarbons, and phenols, most of which are in chimney smoke or automobile exhausts. . . . Sixty percent of the smoke is made up of a dozen noxious gases, including propane, butane, methane, formaldehyde, ammonia, and hydrogen cyanide. Perhaps the most dangerous of all is carbon monoxide, which replaces up to 15 percent of the oxygen in the smoker's blood.[14]

Given the wide variety of toxic particles and gases present in tobacco smoke, it is not surprising that smoking's health toll can be exacted through a wide variety of diseases. Probably the most broadly recognized health consequence of smoking is the heightened risk of lung cancer—which unnecessarily takes hundreds of thousands of

"Habitual smokers shorten their lives by an average of five-and-one-half minutes for each cigarette they smoke."

lives around the world each year. Lung-cancer deaths are much more common among men than among women, but the gap is narrowing as the legacy of the rise in female smoking a quarter-century ago begins to make itself felt.

Past studies have shown that cigarette smokers are at least ten times more likely than nonsmokers to develop lung malignancies. (Those smoking newer low-tar cigarettes may face somewhat lower risks.) Most researchers feel that tobacco is responsible for eight or nine of every ten lung cancers. The combination of tobacco smoke with air pollution or with toxic substances sometimes multiplies disease risks dramatically. For example, asbestos workers who smoke have 92 times the lung-cancer risk of men who neither smoke nor come into regular contact with asbestos. But cigarettes alone almost certainly account for most lung-cancer cases. Dr. Gio B. Gori of the U.S. National Cancer Institute estimates that people smoking two packs of cigarettes a day for a year expose their lungs to 19 times more benzpyrene—just one of the possible carcinogens in cigarette smoke—than they would by breathing the polluted air of Los Angeles for a year.[15]

Other organs and tissues besides the lungs become especially cancer-prone in chronic smokers. Smoking pipes or cigars, as well as puffing on cigarettes, raises a person's odds of developing cancers of the mouth, throat, and voice box, particularly if the smoker is a heavy drinker. Cigarette smoking also multiplies the smoker's chances of developing cancer in the esophagus, pancreas, and bladder. But lung cancer—more frequent and more deadly than these other malignancies—poses a greater threat to the smoker's life than all the other smoking-induced cancers together. After considering the entire spectrum of cancers and what is known about their causes, the American Cancer Society has estimated that 15 to 20 percent of all cancer deaths in the United States and many other countries could be prevented through the elimination of smoking. Leading U.S. and British analysts figure that as many as 40 percent of all cancers in males in these two countries may be attributable to cigarette smoking.[16]

Although the publicity accorded the connection between cigarette smoking and cancer is well deserved, far more of the deaths arising

from cigarette smoking involve coronary heart disease—the leading killer in most developed countries—than cancer. Cardiovascular diseases probably account for more than half the premature deaths caused by cigarette smoking. Smokers under the age of 65 are twice as likely as nonsmokers to die of coronary heart disease. Moreover, smoking combines with other major risk factors, such as high blood cholesterol and high blood pressure, to multiply the heart-disease risk manyfold.[17]

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Recent research on the safety of the birth control pill has revealed that women who smoke account for a disproportionately high share of pill-associated blood-clot and heart-attack victims; pill use and smoking combine to boost cardiovascular-disease risks dramatically. Thus U.S. Food and Drug Administration Commissioner Donald Kennedy warns that "if you take the pill, don't smoke; if you must smoke, find another method of contraception," and has required that pills sold in the United States be labeled accordingly.[18]

While the intense search for carcinogens in tobacco smoke has exposed tars as agents provocateurs, research on the heart and circulatory system has focused new attention on another smoke constituent, carbon monoxide. When men with heart conditions are experimentally exposed to heavy carbon-monoxide concentrations, the chest pains of angina pectoris are set off by less exercise than usual and persist longer than usual after exertion has stopped. Coronary patients have a limited capacity to supply their hearts with oxygen-rich blood; carbon-monoxide exposure further reduces this capacity by impeding the transfer of oxygen from the blood to body tissue. Thus, carbon-monoxide pollution (and nicotine inhalation too) places an added strain upon the heart and increases the likelihood that those already susceptible to heart attacks will experience them. Chronic heavy exposure to carbon monoxide may also promote the development of atherosclerosis (fatty deposits in the arteries), which, over time, can lead to heart attacks. Autopsy studies show that lifelong smokers tend to have more severe coronary atherosclerosis than nonsmokers do, and animals exposed to carbon monoxide develop higher blood-cholesterol counts and more atherosclerosis than unexposed animals do.[19]

Not surprisingly, cigarette smokers take on tremendously increased risks of developing long-term respiratory ailments such as chronic bronchitis and emphysema. Charged with killing tens of thousands and with disabling far more each year in Europe and North America alone, these diseases have emerged as recognized public health problems only over the last century. The twin onslaught on the lungs posed by industrial air pollution and tobacco smoke undoubtedly explains why chronic respiratory diseases are growing in frequency. But cigarettes seem to be the major contributor. Cigarette smokers are five times as likely as nonsmokers to die from chronic bronchitis or emphysema.[20]

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Perhaps the most telling of all medical evidence against cigarettes arises from a simple comparison of annual death rates among smokers and nonsmokers. The famous 1964 Surgeon General's report noted that the death rate in any given year among men smoking ten to nineteen cigarettes daily is 70 percent higher than that of nonsmokers. For those smoking 40 or more daily, the death rate is 120 percent higher. Death rates among those who stop smoking, however, begin to fall immediately; the death rate among former smokers who have abstained for at least a decade is nearly the same as that among people who have never smoked.[21]

Since the major medical indictments of smoking first appeared in the fifties and early sixties, further evidence that raises questions about personal rights has accumulated. Voluntarily inhaling carbon monoxide and carcinogens is one thing; exhaling them into the air that others are forced to breathe is quite another. In a smoky room or car, nonsmokers inhale tars, nicotine, and carbon monoxide just as smokers do and can, like smokers, register at least temporary changes in their blood. Breathing the exhaust of smokers can thus be a strain for heart patients. One study conducted in poorly ventilated saloons in Cleveland found that, over the course of an eight-hour shift, bartenders inhale as many noxious fumes as they would by smoking 36 cigarettes.[22] Once mainly a symbol of behind-the-scenes political bargaining, the "smoke-filled room" is taking on broader connotations as medical research on smoking expands.

The most potentially tragic victims of cigarettes are the infants of mothers who smoke. Pregnant smokers suffer a higher incidence of spontaneous abortion and stillbirths than nonsmokers do. Carbon monoxide, nicotine, and other dangerous pollutants in the pregnant smoker's blood apparently pass through the placental barrier and impede the growth of the fetus; thus, the babies of smoking mothers weigh an average of about 200 grams (nearly half a pound) less at birth than the babies of nonsmoking women. Underweight babies in turn face a heightened risk of disease or death. When other factors that imperil the newborn are present, such as poverty or poor maternal nutrition, heavy smoking by the mother nearly doubles the infant's odds of dying within a month of birth. Moreover, whether or not they are born underweight, the babies of smoking mothers suffer more bronchitis, pneumonia, and other chest infections during their first year of life than other infants do—which may in turn increase their odds of suffering chronic lung diseases later in their lives. Finally, tobacco pesticide-residues, nicotine, and other smoke constituents collect in the breast milk of smoking women, and can thus be passed on to breast-fed babies.[23]

World Smoking Trends

Many people have extinguished their last cigarettes after learning of the health consequences of smoking. The proportion of cigarette smokers among the U.S. adult male population fell from 53 percent in 1964, the year in which the Surgeon General's report appeared, to 39 percent in 1975. Among U.S. adult women, the proportion of smokers fell from a high of 34 percent in 1966 to 29 percent in 1975. In Great Britain, France, and other countries, smokers have also shrunk in number. As a second-best response to the perils of smoking, many new as well as veteran smokers now buy cigarettes that contain relatively low amounts of tar and nicotine. The figures, then, show a significant, though hardly revolutionary, reversal of smoking trends in some of the more developed countries. They also show that the decline in smoking has been especially marked among the most highly educated people.[24]

"The most potentially tragic victims of cigarettes are the infants of mothers who smoke."

The overall downturn in U.S. smoking rates has been marred by a notable exception—one that accounts largely for the slight increase in overall U.S. per capita cigarette consumption since the low achieved in 1970. Unprecedented numbers of teenage girls and young women now smoke. Urged on by the efforts of the tobacco advertisers to identify smoking with women's liberation, young women are narrowing the historic gap between male and female smoking rates. In fact, in the 15- to 16-year-old age group, a slightly higher proportion of girls (20 percent) than boys (18 percent) now smokes. Twenty-seven percent of all American teenage girls now smoke regularly and the number is climbing in the United States and in many other countries—a trend that a World Health Organization (WHO) committee has found especially troubling in light of "the clear finding that smoking during pregnancy has adverse effects on the fetus."[25] If, as one familiar cigarette ad patronizingly chants, women "have come a long way," women's equality with men as smokers may lead to nothing more "liberating" than premature death.

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Although the percentage of its population that smokes is somewhat smaller than it was a decade ago, the United States retains its long-standing title as the world's premier cigarette-smoking country. Partly because so many Americans smoke, but also because U.S. smokers tend to smoke more cigarettes per day than most other smokers do, about 2,750 cigarettes were smoked in the mid-seventies for every person in the country. Only Japan, with a per capita consumption of 2,600 cigarettes, comes close to the U.S. average; astonishingly enough, 75 percent of all Japanese men smoke, though only 15 percent of Japanese women do. Annual per capita cigarette consumption in Western European countries ranges from 1,000 to over 2,000; in Mexico, it is over 700 a year; and in poor African countries like Nigeria and Tanzania, it is still only a few hundred cigarettes per year.[26]

These national cigarette-consumption averages provide little hint of the present smoking pandemic. While the incidence of cigarette smoking may have peaked in some of the developed Western countries, the practice has entered a dramatic growth phase in most less developed countries. Cigarettes are catching on especially quickly in the

cities of poor countries, the forges of modernization. A Pan American Health Organization survey in eight urban areas of Latin America reveals that 45 percent of the men in these cities smoke—a higher percentage than prevails in the United States. In contrast, 18 percent of the women in these major Latin American cities are smokers.[27]

Cigarette smoking is not yet as widespread in most of Africa and Asia as it is in Latin America—no doubt in part because average personal incomes in Africa and Asia are generally much lower than those in Latin America. Ironically, however, just when the smoking habit is being dropped by record numbers of the best-educated and better-off people in North America and Western Europe, the educational and economic elites of the world's poorer countries are leading their countrymen in taking up the practice.

In the United States, half the college graduates who ever smoked have stopped. The decline in smoking among students at elite American universities is even more striking. In 1969, 45 percent of Princeton's freshmen were smokers; by 1977, the proportion had plummeted to 7 percent. Fewer than 2 percent of Harvard's freshmen said they were smokers in a poll taken in the fall of that same year.[28]

Yet data from India, Uganda, and other developing countries show that Western-style cigarette smoking is especially popular among university students there. In fact, smoking in some poor countries may be most popular of all among medical students—who customarily represent the elite of the elite. Among medical students in Lagos, Nigeria, 72 percent of the men and 22 percent of the women were cigarette smokers in 1976. A 1975 survey in a Malaysian university revealed that 20 percent of the medical students smoked, while only 16 percent of the combined engineering, agriculture, education, and science students smoked. What is more, smoking rates among Malaysian medical students actually rise during their years of medical study. Over the course of two years of medical school the proportion of smokers had jumped from 16 percent to 27 percent.[29] Throughout most of the Third World, it seems, the cigarette bespeaks privilege and knowledge.

"Throughout most of Africa, vendors must break open packs and sell cigarettes one by one."

Smoking in poor countries is by no means confined to affluent urban residents. Tobacco use of one sort or another has long been entrenched in many rural regions. For example, shredded tobacco for pipes or hand-rolled cigarettes is a stock item in every Indonesian marketplace. In China, the amount of tobacco grown in backyard plots for personal consumption probably rivals the output of the vast state-run tobacco industry. Contemplating the dim nutritional prospects of the Gurungs, a hill tribe of Nepal, anthropologist Alan MacFarlane recently wrote that, faced with a financial pinch, the tribespeople would likely let themselves become "malnourished rather than give up certain 'luxury' goods such as cigarettes."[30]

Perhaps the chief constraint on cigarette consumption in developing countries is money: only the rich can afford more than an occasional smoke. Throughout most of Africa, vendors must break open packs and sell cigarettes one by one. In isolated Sudanese towns, for example, one sees young men with annual incomes equivalent to only a few hundred dollars buying Benson and Hedges cigarettes at 10¢ apiece.

As incomes in Africa, Asia, and Latin America rise, both the number of cigarette smokers and their smoking frequency climb as well. Rapid income growth usually affects smoking rates perceptibly; oil-rich Middle Eastern countries are providing cigarette merchants with their hottest new market. In Nigeria, lung cancer is still rare, but a medical professor at Lagos University warns that "lung cancer will emerge with the affluence generated by our country's oil economy; there will definitely be more money for cigarettes."[31] Overall, most developing countries are well on their way to creating the same tobacco-related dilemmas with which developed countries are now grappling.

Who Profits?

Who profits from the tobacco business? The long list of those with a financial stake in a booming cigarette trade includes private and governmental tobacco farmers, huge transnational private cigarette companies and state-owned cigarette monopolies, local and national governments that collect tobacco-generated taxes and foreign ex-

change from tobacco sales, and the thousands of newspapers and magazines that carry cigarette advertisements. The profitability of the global tobacco business is in turn enhanced by the direct and indirect subsidies provided it by many governments.

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The two leading tobacco-growing countries are China and the United States; India, the Soviet Union, Turkey, and Brazil come in next but far behind. (See Table 1.) But the world's five major cigarette companies are, in order, the Chinese Government monopoly, the British-American Tobacco Company, the Soviet and Japanese Government monopolies, and Philip Morris, Inc.[32] Hence three of the top five cigarette producers are public rather than private enterprises.

Table 1: Major Tobacco-Producing Countries, 1976

Country	Production
	(thousand metric tons)
China	1,051
United States	961
India	347
Soviet Union	318
Turkey	316
Brazil	298
Japan	165
Bulgaria	164
Greece	127
Italy	109
South Korea	108
Poland	106
Other Countries	1,617
World Total	5,687

Source: Food and Agriculture Organization.

The nearly unfettered functioning of cigarette companies in capitalist social systems—in which the ethic of "free enterprise" is deeply enfrenched if not always obeyed—is predictable. But the seemingly unchecked power of tobacco interests within the governments of controlled-market economies such as those of China and the Soviet Union is rather puzzling to some observers, particularly since both those governments have so strongly emphasized preventive medicine. While the Soviet Government is at least trying to discourage smoking through public education, the Chinese Government has done nothing to uproot the habit. Anti-smoking campaigns might well strike the Chinese as hypocritical, since many powerful national leaders —including the late Chairman Mao—have been heavy smokers. But an American official recently offered a second explanation upon returning from a visit to China: the large tax on cigarette sales "serves as a major source of investment capital for the central government—a source not easily replaced and therefore not lightly abandoned."[33]

Many governments, in fact, must view the tobacco trade with mixed emotions. As they boost cigarette and tobacco taxes and import duties —often ostensibly to discourage smoking—governments simultaneously create a major revenue source that is far easier to justify politically than increases in other kinds of taxes would be. In many countries, the tax revenue from tobacco products exceeds the income received by farmers for the original tobacco crop. In the United States in 1976, the federal, state, and local governments took in about $6 billion in taxes on tobacco products; the $4 billion in tobacco taxes received by the British Government in 1974 constituted 70 percent of the consumers' expenditures on cigarettes. Taxes on tobacco products provided 5 percent of the Indian Government's revenues in fiscal 1975.[34]

Held hostage by the political power of the tobacco and cigarette producers, lured by self-interest in the tobacco business, or both, many governments actively subsidize tobacco production. In the 1977 fiscal year, for example, the U.S. Department of Agriculture (USDA) spent about $65 million on the administration of its price-support program and on crop inspection and grading, tobacco research, export promo-

tion, market research, and other activities that support the tobacco industry. But merely to recount the USDA's net expenditures in support of tobacco interests is to seriously understate the government's involvement in the business. Tobacco prices are maintained through a combination of production quotas and the buildup of government-held "loan stocks" of the crop, which are acquired when market prices fall below a specified level. The size and value of these stocks varies over time but can be quite large; in mid-1977, the government held tobacco stocks worth $659 million.[35] As Kenneth M. Friedman observes in his book *Public Policy and the Smoking-Health Controversy*:

> The present government loan stocks of tobacco represent a significant investment by the government in the future economic growth of tobacco and cigarettes. This investment makes the government an industry partner in seeking increased domestic and foreign sales. The government's tobacco inventory has been the largest in value of any farm commodity and represents a substantial possible loss. . . . Strongly vested interests to maintain government tobacco programs have developed on the part of program participants, government administrators, and congressional sponsors.[36]

Taxpayers in the European Economic Community (EEC) pay a large direct subsidy to tobacco farmers. In 1975, EEC tobacco growers, who live mainly in Italy and France, received $206 million in "premiums" from the Community, or an average of more than $2,500 per hectare planted to tobacco. These subsidies accounted for more than half the farmers' incomes from their tobacco crops.[37]

Governmental double standards are especially flagrant when tobacco and cigarette exports are concerned. Foreign exchange is always welcomed by economic planners, and, in this case, the negative health results are someone else's concern. To help keep Italy's tobacco exports competitive outside the European Community, the EEC provides a subsidy of about 10¢ for each pound of tobacco sold. The U.S. Government ended its direct commercial-export subsidies

in 1973 and its practice of sharing equally with producers the costs of export promotion in 1975, but still finances trips of tobacco experts to and from the United States and U.S. tobacco booths in foreign trade fairs.

Perhaps the most cynical foreign use of tobacco by the United States has been the inclusion of tobacco in the Public Law 480 "Food for Peace" program of concessional agricultural sales to needy countries. This supposedly humanitarian aid program has been manipulated to meet several goals at once: to get rid of unwanted domestic tobacco surpluses, to introduce foreigners to U.S. tobacco in hopes of nurturing a future commercial market, and to provide economic aid to politically favored governments. The amount of tobacco shipped on easy terms under the program has ranged in value from $17 to $66 million a year over the last decade, with the bulk going to areas of "national security" concern such as South Vietnam, Cambodia, and, most recently, Egypt.[38]

China's desire to expand its already large tobacco and cigarette export markets was underscored by the exhibition of more than a dozen brands of Chinese cigarettes and cigars at a recent Philippine trade fair. The displayed brands included Lingchih filters, in which tobacco is laced with a "Lingchih extract" (described in the trade literature as being "an excellent tonic"); an assortment of other brands with names like Peony, Golden Orchid, and Golden Deer; and Sailing Boat herb cigarettes, which, the Chinese salesmen pointed out, have a reputation for "allaying asthma and relieving cough."[39]

Contradictory policies concerning tobacco exist within the network of United Nations agencies just as they do within national governments. The Food and Agriculture Organization (FAO) and U.N. Development Program (UNDP), which jointly administer agricultural aid projects in the Third World, treat tobacco simply as a cash crop. They have assisted the development of tobacco production in several countries including Ethiopia, Jordan, Uganda, and Yemen. The World Bank has recently aided tobacco-related projects in Tanzania, Uganda, and Zambia.

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But the World Health Organization, which has documented the heavy price of cigarette smoking in developed countries, is not pleased to see the same health hazard emerge in less developed countries. Nor is it pleased to see the emergence of ever more countries with vested interests in the continuous expansion of world tobacco consumption. WHO officials have urged the FAO and UNDP to switch their efforts from the promotion of tobacco growing to the promotion of shifts into less pernicious crops. WHO's protestations are hardly likely, however, to be any more successful than those voiced by American health experts about the U.S. Department of Agriculture's tobacco subsidies; tobacco is virtually unrivalled as a profitable cash crop.

Tracing the precise roles of Western cigarette companies in the Third World is extremely difficult because they operate through such a complex network of partnerships and licensing relationships. Philip Morris International, for example, sells more than 175 brands in more than 160 countries and territories through 25 manufacturing and marketing affiliates, 18 licensees, and some regional export-sales organizations. The company's recent, rapid expansion in the Third World has been especially striking: eleven of its thirteen affiliates and seven of its nine licensing arrangements in Africa, Asia, and Latin America have been established since 1965. Benefiting from the spreading taste for American-style tobacco blends, which is boosting U.S. market shares in both rich and poor countries, Philip Morris International's foreign cigarette sales have grown by a spectacular 18 percent annually over the last decade. The British-American Tobacco Company, based in London, runs an even larger world empire, selling more than 300 cigarette brands in more than 180 countries. British-American Tobacco owns subsidiaries in 29 African, Asian, and Latin American countries and has affiliates in several more.[40]

"In the developing countries, where consumption was very low two decades ago, prospects for market growth are attracting strong promotional efforts" by the cigarette companies, observes Dr. Daniel Horn, Director of the U.S. National Clearinghouse on Smoking and Health and a leading authority on global smoking trends. Thus a recent trade-magazine photograph shows the mayor of Niamey, Niger, placing the victory sash on Niamey's new "Miss Gitanes" (so named

"In Taiwan each cigarette pack bears not a health warning but a political morale booster."

after the French brand that sponsored the beauty pageant). The same magazine describes the two images stressed in the advertising of another French brand, Gauloises, in Africa: that it is a high-status cigarette, and that it is a "virile cigarette, an important quality considering the male pride of the African." Noting that the foreign cigarette market "is significantly larger than the U.S. market and has been growing more rapidly," the R. J. Reynolds Company established a new subsidiary in 1976 to direct its international operations. Since the late sixties, these operations have expanded from Europe, Africa, and the Middle East into Latin America and Asia. In its first year, according to the company's annual report, Reynolds Tobacco International "established the foundation for a program of aggressive marketing in the countries in which it operates."[41]

In the Third World, cigarette marketers—whether the increasingly common state monopolies or the affiliates of multinational firms—generally face none of the irksome advertising restrictions and health-warning requirements that governments in Europe and North America have imposed on domestic sales. Indeed, in Taiwan each cigarette pack bears not a health warning but a political morale booster: "Maintain self-respect and self-reliance. Stay calm in the face of adversity."[42]

Those who design, print, or broadcast cigarette advertisements also benefit from the tobacco business. Far from bringing down the promotional fever a few degrees, the bans on television and radio cigarette advertisements in the United States and in several other countries merely provided a windfall for the print media. Much of the $500 million domestic advertising budget of the American cigarette companies now falls into the laps of magazines and newspapers, few of which have distinguished themselves by refusing to partake of this money. *Time* magazine receives an estimated $15 million each year from cigarette advertisers, while the *New York Times* takes in $5 million annually for its cigarette ads. One investigator recently concluded that most of those magazines that benefit from substantial cigarette advertising have printed remarkably little in recent years on smoking's ill effects.[43]

The mainstays of the tobacco business are, of course, the hundreds of millions of tobacco consumers. Social forces encourage people to start and to cling to the smoking habit, but the $85 to $100 billion that consumers spend each year on cigarettes is what sustains global cigarette production and trade.

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Public Policy and Public Health

In the ambiguity-plagued universe of environmental-health studies, proof of unequivocal links between particular environmental agents and particular diseases rarely emerges. The airtight medical case against cigarettes stands out sharply as an exception. Cigarettes therefore explicitly challenge the capacity of societies to use the conclusions of health research to improve health. Today's significant debate is not over the possibility that cigarettes might be a health hazard. As U.S. Health, Education, and Welfare Secretary Joseph Califano has observed, the continuing efforts by cigarette-industry representatives "to deny the overwhelming medical evidence about smoking and health are, in essence, an attack upon science."[44] The question facing societies is what to do about an unquestionable hazard.

But breaking the social grip of cigarettes is no simple task. Pollution from cigarette smoke, unlike that from industrial wastes, results primarily from personal decisions. Smoking, overnutrition, dangerous driving, and other forms of self-destruction are all health problems rooted in personal behavior, problems that often leave health officials feeling perplexed and powerless. What, if anything, should governments do to influence people who persist in unhealthy behavior despite knowledge of the dangers? Draconian interventions into people's lives could probably keep smoking to a minimum but would do so at a steeper social price than most are willing to pay.

At the same time, social policy should acknowledge that the individual's decision to smoke does not take place in an ideal world of free, informed choice. Personal behavior is heavily influenced by the political and social environment, and, from infancy onward, people are bombarded constantly with subtle and not-so-subtle enticements to

smoke. Powerful advertisements that associate cigarettes with liberation and sexual success are reinforced by what is probably a stronger influence—the example set by countless smoking adults. Moreover, although teenagers may start smoking out of a desire to appear suave and mature, they may keep smoking long after that motive has lost its relevance because they are hooked on nicotine, an addictive drug.[45]

Given the essentially pro-smoking social climate in which nearly all the world's children grow up, any foreseeable governmental anti-smoking programs can hardly be considered infringements on personal freedom; at best, they can only help counterbalance the forces that encourage smoking. It is no affront to individual dignity to suggest that public policies encouraging self-destructive habits be eliminated or that commercial advertising of dangerous substances be curbed. Nor need governments hesitate to underwrite programs and economic incentives that promote healthy personal habits. The molding of a social milieu that promotes enlightened self-interest is not a public denial of personal rights, but rather a public responsibility to the individual.

An additional strong rationale for anti-smoking policies arises from consideration of the total social costs of cigarette use—costs that for the most part must be shared by nonsmokers and smokers alike, and that have probably never been adequately calculated. In the United States, federal officials conservatively estimate the annual direct medical cost of treating smoking-generated diseases at $5 to $7 billion. A blue-ribbon panel of experts assembled by the American Cancer Society has concluded that the medical costs of smoking are much higher—$15 billion. Whichever figure is correct, a large share of it is paid by the general public through governmental or private insurance and health-care schemes, which now pay two-thirds of the national health bill. In addition, the wages lost by workers and the production lost by society each year because of illness and premature death attributable to smoking have been valued at $12 to $18 billion. While a portion of these latter costs are borne directly by smokers (and their families) in the form of lost income, the more general effects are a reduction in the gross national product and higher prices for goods and services.[46]

Fires caused by the careless use of cigarettes account for a large additional toll. In 1976 in the United States, residential fires took 6,200
26 lives and caused $1.4 billion in property damages. According to the National Fire Protection Association, more than one-fourth of all residential fires, and 56 percent of fatal residential fires, are ignited by smoking materials. The property losses from smoking-related nonresidential fires and the medical expenses and wage losses of people injured or killed in all smoking-caused fires push the indirect toll of smoking still higher.[47]

A full accounting of smoking's costs would, moreover, include the hundreds of millions of dollars in public research funds devoted to smoking-related diseases. Also, nonsmokers generally pay higher life insurance premiums than they would if smokers were not included in the actuarial tables. Finally, of course, the personal grief and loss surrounding the estimated 320,000 premature deaths annually caused by cigarette smoking in the United States exact an inestimable social price. More Americans are killed by cigarettes each year than were killed in combat in all of World War II.

The total social cost of smoking in the United States, then, is almost certainly more than $20 billion—and thus more than three times the $6 billion in taxes exacted from the cigarette trade. Even if the $3 billion received as income by tobacco growers and cigarette-industry workers, and the $1 billion in foreign exchange gained through net exports of tobacco and its products, are added to the balance, the net social burden imposed on Americans by tobacco use remains huge. Similarly, data from the United Kingdom reveal the social cost of smoking there to be at least triple the taxes collected on tobacco and its products.[48] Furthermore, in contrast with taxes, which merely constitute a transfer of resources from one sector of society to another, many of smoking's hidden costs (such as production losses and fire damages) entail actual reductions in the real resources available to society, material diminutions in national welfare. All told, nonsmokers are paying a vastly higher subsidy to smokers and the tobacco interests than most people realize.

These two considerations—the pro-smoking milieu in which most children grow up, and the huge, unfairly shared social cost of smoking—together provide a powerful rationale for governmental anti-smoking initiatives. The goal of public programs should not be to outlaw smoking among informed adults; such an approach would never work even if it were not an unacceptable infringement on personal liberty. Rather, public policies on smoking should aim to inform all individuals fully of the health and other social costs of cigarette smoking, to deter young people from picking up the habit, and to protect the health and comfort as well as the financial rights of non-smokers.

Although each country will adopt a program tailored to its unique smoking problems and social values, certain policies seem appropriate virtually everywhere. The heart of any anti-smoking effort must be the vigorous, continual education of the public about the multitude of health and other hazards that cigarette use entails. Since many youngsters start smoking by age 12 or 13, such education needs to begin early. It should include the dissemination of information not only through schools but also through the mass media.

Because so many Americans continue to smoke despite their awareness of at least some of the dangers, some people argue that further anti-smoking education is futile. The facts, however, belie this argument. Past anti-smoking programs, however haphazard, have definitely paid off. Per capita cigarette consumption in the United States had been rising steeply each year throughout the decade leading up to 1964. But in that year, following the well-publicized Surgeon General's report, consumption immediately dropped sharply and it has not regained its former level since then. Similarly, the anti-smoking television and radio commercials, which ran from 1968 to 1970, coincided with measurable declines in smoking—declines that have been partially reversed since these commercials stopped. An analysis of U.S. smoking trends by Kenneth E. Warner of the University of Michigan concludes that, in the absence of the previous decade's anti-smoking efforts, American per capita cigarette use in 1975 would have been 20 to 30 percent higher than it was. Most telling of all, of course, is the simple fact that 30 million Americans have quit smoking.[49]

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Likewise, the French anti-smoking campaign launched in September 1975 has achieved significant results in a short time. After one year of concentrated publicity using television, radio, posters, and brochures, the number of smokers fell by 3 percent and total tobacco consumption fell by 15 percent among adults and 16 percent among the young. Whereas the sale of tobacco products had long been rising by 5 percent annually, sales in 1976 dropped by 2 percent—a striking reversal.[50]

If these limited anti-smoking campaigns have achieved some success, then far more extensive and sustained efforts that also include stringent restrictions on pro-tobacco propaganda might achieve far more. Even the $6 million budget for U.S. smoking education proposed for 1979 by Secretary Califano (which will be six times the existing annual budget) is pitifully small in comparison with the $500 million spent annually by the cigarette firms on domestic advertising. The proposed public program will involve the expenditure on smoking education of $18.75 for each of the 320,000 premature deaths annually attributable to cigarettes. Meanwhile, the industry will spend on advertising some $1,560 for each smoking-related death.[51]

A strong case exists for placing severe restrictions on cigarette advertising; possibly, it should be banned altogether. Industry representatives often claim that advertisements do not influence individuals' decisions on whether or not to smoke, but that they affect only the choice of brands. However, as a report by Dr. Martin Fishbein to the Federal Trade Commission notes, several economic and statistical studies conducted in the United States and Great Britain have shown that the level of cigarette advertising does influence smoking rates.[52]

The most significant pernicious influence of cigarette ads may, in any case, be their indirect—though certainly calculated—role in creating positive social images of smokers, images designed to hold special appeal for youngsters. A recent survey among American youths provided evidence that "cigarette advertising helps to reinforce and enhance the image of the teenage smoker as young, attractive, healthy, and sexy." Another survey found that both men and women who

"More than three-fourths of the Americans who smoke acquired the habit before they were 20."

smoke characterize the female smoker as "sexually open, sophisticated, sociable, flirtatious, good-looking, and a career woman"—precisely the images stressed in most cigarette commercials. Advertisements in less developed countries often emphasize, in addition to the good looks and sex appeal, the high social status and "modernity" of smokers.[53]

Whether or not an outright ban on cigarette commercials would aid the anti-smoking battle is disputed. A few countries, including Iceland, Italy, Norway, and Singapore, have outlawed most cigarette advertising. Looking at the seeming lack of correlated results in these nations, some analysts argue that such bans are simply ineffective as a means of reducing smoking.[54] On the other hand, only time can tell whether the lack of cigarette promotion, if maintained over a generation and combined with aggressive health education, might help curb the smoking habit.

At the least, however, available evidence suggests the desirability of regulating the nature and contents of cigarette ads in order to halt the constant association of cigarettes with seductive social images. Cigarette commercials could be limited to black-and-white written texts that provide only factual information about products as well as explicit warnings about the health consequences of smoking. Such restrictions could be combined with a total ban on the promotion of brands whose tar, nicotine, and carbon-monoxide contents exceed specified levels—levels that, in turn, could be steadily lowered over time.

The overriding objective of anti-smoking campaigns must be to prevent young people from getting hooked on cigarettes in the first place. More than three-fourths of the Americans who smoke acquired the habit before they were 20.[55] Government policies cannot directly offset certain of the factors, such as peer pressures and the examples set by respected adults, that obviously help coax youngsters into the smoking habit. But dissipating the smoke screen of cigarette advertisements can at least eliminate this possible contributor to the problem and can reinforce the benefits of accurate health education.

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The need to protect nonsmokers from tobacco-related health risks or discomfort has been acknowledged in the laws of a growing number of cities and countries. For example, Moscow recently banned smoking in the city's restaurants, while at least 19 American states have limited smoking in public buildings or public transportation facilities. Such laws are often laxly enforced, however. The restriction of smoking in workplaces, especially those in which pollutants are present that may combine dangerously with tobacco smoke, is an additional need that is just beginning to receive the attention it deserves. Interestingly, in a 1975 poll in the United States more than half of all current smokers agreed that cigarette smoking "should be allowed in fewer places than it is now"—strong evidence that public opinion has outpaced public policy in this area.[56]

Because it involves behavior inside the home and the family, the question of protecting fetuses and infants from the effects of maternal smoking constitutes a rather more complex and controversial political issue. At the least, however, all girls and pregnant women must be made aware of the potential impact of cigarette smoke on the unborn and on the newborn. Doctors, teachers, and other professionals in frequent contact with teenage girls and pregnant women therefore bear special responsibility for informing them about the hazards of maternal smoking.

Policies to reduce involuntary health threats to nonsmokers are increasingly common. Oddly enough, however, the parallel need to cut the huge, involuntary financial subsidy that nonsmokers pay to smokers and to the tobacco industry in the forms of shared medical expenses, life-insurance premiums, fire-protection costs, and economic losses has received little attention. In particular, as health care burdens around the world are increasingly borne by collective groups (including private insurance and national medical programs), the equity of medical finances deserves new scrutiny.

Those who smoke—not to mention those who encourage and profit from smoking—account for a disproportionate share of society's health costs and hence ought to be made to foot a just share of the medical bills. One possible answer would be the imposition of a

"health tax" on cigarettes, the level of which could be determined by the size of cigarette-caused public health costs. In the United States, for instance, a 24¢ additional tax on each pack of cigarettes would produce revenues of some $7 billion that could be devoted to the treatment of cancer, heart disease, and lung diseases in public medical programs. The more widespread distinction between smokers and nonsmokers in the setting of life-insurance premiums is another measure that can help reduce the financial inequities imposed by smoking.

Governments can weed many contradictions from their present policies by ending all subsidies to tobacco growers and to tobacco and cigarette exporting concerns. Any short-term social difficulties, particularly losses of jobs and income by farmers and workers, caused by such a move could be offset by using the money once devoted to tobacco subsidies to retrain workers and to introduce more beneficial crops, such as vegetables or soybeans, onto tobacco lands. In any case, possible temporary hardships resulting from, say, an end to tobacco price supports can be weighed meaningfully only in relation to all the direct and indirect social costs of continued widespread smoking.

The presumed goal of tobacco price supports and other direct subsidies is not to encourage smoking, but to maintain the incomes and jobs of tobacco farmers and related workers. For example, about 300,000 American farmers, who are concentrated in a few southern states, receive significant shares of their incomes from tobacco.[37] But maintaining the incomes of a small fraction of the population by encouraging the growth of a product that undermines the health of tens of millions of people and that exacts a social toll amounting to tens of billions of dollars is hardly a sensible approach.

A society wishing to support the incomes of particular groups has various tools for doing so; tobacco subsidies are not the only choice. The goal of anti-smoking programs is not to hurt farmers; but, to the extent that some suffer as a result, society should help meet their needs just as it should help meet the needs of any group facing unemployment or poverty. Indeed, if a major drop in tobacco use does

occur, Americans could simply give tobacco farmers the $2 billion they now receive for their crop and still come out ahead financially. The simultaneous savings in medical expenses, productivity, and fire damages would more than offset such payments.

Since no society has yet maintained a comprehensive anti-smoking campaign over an extended period, the potential results of such a program cannot be predicted. Based on the limited experiences to date, however, it seems quite possible that the systematic use of education, advertising restrictions, health warnings on cigarette packages, tax disincentives, and so on might alter the smoking scene radically. The experience of the anti-smoking program now under way in Sweden, which may be the most comprehensive of any country's, merits particular study.

In 1973, Swedish health officials designed a 25-year program intended to create among the children born after 1974 "the first nonsmoking generation." Information about smoking's hazards was first directed at pregnant women; it will be provided to this generation of children as they enter kindergarten and then as they reach successive levels in the school system. The sale of cigarettes in vending machines and food stores will be banned, as will the sale of cigarettes to persons under age 16. Cigarette prices will gradually be boosted and cigarette advertising phased out.

All cigarette packages sold in Sweden must now declare carbon monoxide as well as tar and nicotine contents. In a creative effort to multiply the effectiveness of health warnings, each pack must carry one of 16 different messages ranging from "Smoking during pregnancy may harm the child" to "Smokers run an increased risk of heart attacks" to "Smokers are more sensitive to air pollution." Special smoking restrictions are being applied in those workplaces where the health risks of smoking are exceptionally high. Overall, the Swedish Government hopes to create, to the broadest extent possible, an anti-smoking social environment.[58]

A different approach to the smoking problem is to press ahead with the search for cigarettes that are lower in tars, carbon monoxide, and

other toxic gases. Both the cigarette companies and the U.S. Government are now involved in research toward that end. While opinions differ as to whether public funds ought to be diverted from anti-smoking campaigns into such research, or whether all such expenses ought to be borne by the private companies, safer cigarettes can undoubtedly reduce the health costs of smoking.[59] The two goals, a nonsmoking society and less harmful cigarettes, need not be viewed as contradictory; both can be pursued at once.

Third World health officials argue, understandably, that health care resources cannot be diverted to anti-smoking campaigns in a context where two or three of every ten babies born die from undernutrition or infection before reaching age five. Yet, throughout much of Africa, Asia, and especially Latin America, the incidences of heart disease and cancer are on the rise as the basic sanitary and nutritional needs of growing numbers of people are met, reducing the infectious disease toll. Certainly efforts to boost the income, nutritional, and sanitary levels of the poor must always receive the highest social priority. But it may never be too early to curtail cigarette advertising, to educate youngsters about smoking's hazards, to halt governmental subsidies to the tobacco industry, and to end the control by tobacco interests of farmlands badly needed for other purposes. Experience in the developed countries has proven that, once culturally rooted, the smoking habit holds its own in the face of the most damning medical evidence.

In all countries, rich and poor, efforts to squelch the smoking habit will face formidable obstacles. Smoking's social aura carries a force not to be underestimated, one not easily darkened by grim mortality statistics. More tangible is the huge worldwide consumer expenditure on cigarettes. Equalling a fourth of the global military budget, it ensures that powerful, strongly motivated interests will struggle to keep global cigarette sales on the rise.

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